

USSN: 09/732,123  
Attorney Docket: 10242  
Page 3 of 8

---

### REMARKS

Claims 1-11 are all the claims pending in the application.

Claim 1 has been amended to clarify that it is the plasma treatment that (i) renders the pore spaces of the film more hydrophilic and (ii) provides the film layer with the particularly claimed receding contact angle for water and pore accessibility for water.

As suggested by the Examiner at paragraph No. 2 of the Action, Applicant kindly requests that the Examiner rejoin method claims 7-11 in the event that the Examiner deems present claims 1-6 allowable. Indeed, Applicant has amended independent method claim 7 so that it recites all the limitations of the allowable product claim.

The following rejections, presented at paragraph Nos. 5-8 of the Office Action, represent the lone outstanding rejections:

claims 1-4 and 6 are rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 6,022,902 to Koontz;

claims 1-4 and 6 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 5,340,672 to Kubota, *et al.* ("Kubota");

claims 1-4 and 6 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over publication No. JP 2208333 ("JP '333");  
and

claim 5 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Koontz or Kubota or JP '333 in view of U.S. Patent No. 5,837,365 to Chung.

Applicant respectfully traverses each of the rejections.

USSN: 09/732,123  
Attorney Docket: 10242  
Page 4 of 8

---

The Examiner has taken essentially the same position for each of the three primary references. The Examiner states that both Koontz and Kubota are silent about a receding contact angle and pore accessibility for water. The Examiner states that JP '333 is silent about porosity in addition to being silent about a receding contact angle and pore accessibility for water.

The Examiner, however, asserts that each of Koontz, Kubota, and JP '333 disclose the use of the same plasma discharge to treat the surface of the same porous film as Applicant. Therefore, the Examiner concludes that the subject matter expressly missing from the prior art (especially, the receding contact angle and pore accessibility for water) is inherently present within the prior art.

Applicant respectfully disagrees.

A rejection based on an allegedly inherent element(s) must satisfy the requirement that the prior art necessarily possesses the inherent element. As explained in In re Oelrich, 212 USPQ 323, 326 (CCPA 1981) [quoting Hansgirk v. Kemmer, 40 USPQ 665, 667 (CCPA 1939)], inherency may not be established by probabilities or possibilities.

Applying the law to the facts of the present case, the prior art references do not *inherently* possess the claimed receding contact angle and pore accessibility for water because the prior art references do not *necessarily* possess the claimed receding contact angle and pore accessibility for water.

In this regard, there are different ways, and different variables within the different ways, of plasma-treating a film layer. As just one example of this fact, Applicant refers the Examiner to the description at page 9, line 22 through page 10, line 4 of the specification, and especially Table 1 at page 11. Therein, variables such as film line speed, power, gas flow rates, plasma pressure, etc. are described. The variables all form part of a process of plasma-treating that draws plasma into the pores of the film layer by creating convective currents that accelerate ions into the substrate, as described from page 2, line 25 through page 3, line 24.

Any of the variables can be varied. As a result of the variation, the plasma-treated film layer may have properties that fall within the presently claimed ranges or the plasma-treated film

USSN: 09/732,123  
Attorney Docket: 10242  
Page 5 of 8

---

layer may have properties that fall outside the presently claimed ranges. Alternatively, the plasma-treatment can be conducted in a manner different from that described in the present specification. For example, plasma may be generated and allowed to diffuse, without being driven or accelerated, towards the substrate. Whatever the form of plasma-treatment selected, the plasma-treated film layer may have properties that fall within the presently claimed ranges or the plasma-treated film layer may have properties that fall outside the presently claimed ranges.

Applicant's claims are not intended to include within their scope any and all porous film layers that have been plasma-treated in any and all ways. Instead, the present claims are specifically directed to porous film layers that (i) have a pore volume fraction of at least 0.40 and (ii) have been plasma-treated to make the pore space thereof more hydrophilic and to provide the film layer with: (a) a receding contact angle for water of less than 35° and (b) a pore accessibility for water of at least 0.60.

It does not matter *how* the film layers have been plasma-treated -- it only matters that the plasma-treatment have provided the film with (a) a receding contact angle for water of less than 35° and (b) a pore accessibility for water of at least 0.60. The present specification discloses specific embodiments that achieve the invention (Applicant refers to pages 9-12 of the specification and Table 3).

The important point, however, is that due to the many different ways, and different variables within the different ways, of plasma-treating a film, it is not *necessarily* true that all plasma-treated film layers will meet the requirements of the present claims. Varying one or more of the variables will vary the properties. Therefore, the prior art references cannot *inherently* possess the claimed receding contact angle and pore accessibility for water, as "inherently" has been defined in the patent law.

With respect to anticipation, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference [see, Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631 (Fed. Cir. 1987); MPEP §2131]. The identical invention must be shown in as complete detail as is contained in the claim

USSN: 09/732,123  
Attorney Docket: 10242  
Page 6 of 8

---

[*see, Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)].

As the Examiner has pointed out, Koontz, Kubota, and JP '333 do not expressly disclose the claimed receding contact angle and pore accessibility for water, and JP '333 also does not expressly disclose the claimed porosity. As Applicant has explained above, none of Koontz, Kubota and JP '333 inherently discloses the claimed variables. Therefore, the §102 aspects to the present rejections must be reconsidered and withdrawn.

Turning to the §103 aspects of the present rejections, the prior art must suggest to one of ordinary skill in the art that the prior art should be modified in order to arrive at the claimed invention. The mere possibility that the prior art may be modified so as to arrive at the claimed invention does not render obvious the invention unless the prior art suggested the desirability of the modification. The suggestion to modify must be "clear and particular" [*see, In re Sang Su Lee*, 2002 U.S. App. LEXIS 855 (Fed. Cir. 2002); *Winner Int'l Royalty Corp. v. Ching-Rong Wang*, 53 USPQ2d 1580, 1586-1587 (Fed. Cir. 2000)].

Applying the law to the facts of the present case, the prior art, including Koontz, Kubota, and JP '333, provides no motivation at all for a person of ordinary skill in the art to prepare the presently claimed plasma-treated porous film layer having the presently claimed properties versus plasma-treated porous film layers having properties outside the scope of the present claims. As the Examiner has pointed out, both Koontz and Kubota are silent about a receding contact angle and pore accessibility for water, and JP '333 is silent about porosity in addition to being silent about a receding contact angle and pore accessibility for water. The silence of the prior art references in this regard precludes them from being able to provide the necessary motivation to steer a person of ordinary skill in the art to the present invention.

In light of the different ways, and different variables within the different ways, for preparing a plasma-treated porous film layer, a person of ordinary skill in the art armed only with Koontz, Kubota, or JP '333 will prepare many plasma-treated porous film layers having properties outside the scope of the present claims. It is only with the benefit of Applicant's disclosure that a person of ordinary skill in the art will (i) *necessarily* prepare the presently

USSN: 09/732,123  
Attorney Docket: 10242  
Page 7 of 8

---


claimed plasma-treated porous film layer having the presently claimed properties and (ii) appreciate the advantages of the presently claimed plasma-treated porous film layer having the presently claimed properties.

For each of the foregoing reasons, Applicant respectfully requests that the §103 aspects to the present rejections be reconsidered and withdrawn.

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: April 22, 2003

  
Rick F. James  
Registration No. 48,772

ExxonMobil Chemical Company  
Law Technology Department  
4500 Bayway Drive  
P. O. Box 2149  
Baytown, Texas 77522-2149  
(281) 834-5675  
(281) 834-2911 (Fax)

USSN: 09/732,123  
Attorney Docket: 10242  
Page 8 of 8

## APPENDIX

### VERSION WITH MARKINGS TO SHOW CHANGES MADE

#### IN THE CLAIMS:

The claims are amended as follows:

1. (AMENDED) A plasma-treated thermoplastic, open-celled, porous polymeric film layer, wherein said film layer ~~is~~ has a pore volume fraction of at least 0.40 and said film layer has been treated with plasma to make the pore space thereof more hydrophilic; and ~~wherein said to~~ provide said film layer has with the following properties: (a) a receding contact angle for water of less than 35°; ~~(b) a pore volume fraction of at least 0.40;~~ and ~~(eb)~~ a pore accessibility for water of at least 0.60.
7. (AMENDED) A method for plasma-treating a porous thermoplastic polymeric film to make the pore space thereof more hydrophilic, wherein said film has at least one surface layer comprising exposed pores and having a pore volume fraction of at least 0.40, and wherein said method comprises the simultaneous steps of:
  - (a) passing said film between two electrodes, wherein one of said electrodes is a plasma-generating electrode, which faces an outer surface of said film layer having exposed pores, and the other electrode is a plasma-attracting electrode, which is positioned adjacent to the opposite side of the film;
  - (b) operating said plasma-generating electrode under conditions sufficient to generate plasma; and
  - (c) operating said plasma-attracting electrode under conditions sufficient to draw plasma generated in step (b) into the pore space of said porous film layer,wherein said plasma-treatment provides said porous film layer with (a) a receding contact angle for water of less than 35° and (b) a pore accessibility for water of at least 0.60.